

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-079880

(43)Date of publication of application : 23.03.1999

(51)Int.Cl.

C30B 11/00

C01F 11/22

C30B 29/12

G03F 7/20

(21)Application number : 09-244225

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(22)Date of filing : 09.09.1997

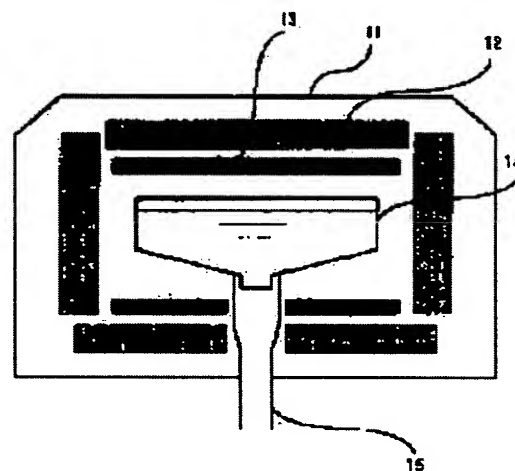
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## (54) PRODUCTION APPARATUS FOR FLUORITE OF LARGE DIAMETER AND ITS PRODUCTION

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain a single crystal of large diameter, by arranging a crucible in a vacuum electric furnace having a ceiling heater and a bottom heater, uniforming the temperature of a melt in the interior of the crucible in the radius direction, making a temperature gradient in the growth direction of a single crystal and growing crystal.

**SOLUTION:** A crucible 14 supported on a supporting rod 15, a ceiling heater 13, a bottom heater, etc., are arranged in the interior of a bell jar 11 of a vacuum electric furnace and a thermocouple is placed in the vicinity of each heater to carry out control in quick response. In order to prevent a solidified part from cracking, the height of an ingot is  $\leq 200$  mm. Then an electric source is applied, the ceiling heater 13 is made about  $1,550^{\circ}\text{C}$  and the bottom heater about  $1390^{\circ}\text{C}$  so as to give 8 k/cm temperature gradient. The temperature difference of  $160^{\circ}\text{C}$  is maintained to grow crystal with reducing temperature at  $1^{\circ}\text{C}$  per hour. After the ceiling heater 13 is dropped to about  $1,350^{\circ}\text{C}$ , both the heaters are adjusted to about  $1,300^{\circ}\text{C}$  and the ingot is gradually cooled so that it is not cracked to give a single crystal having  $\geq 250$  mm diameter.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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